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09/807,857	04/19/2001	Brian Herbert Beech	U013409-5	6229

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EXAMINER

ODOM, CURTIS B

ART UNIT	PAPER NUMBER
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2634

DATE MAILED: 08/13/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/807,857

Applicant(s)

BEECH ET AL.

Examiner

Curtis B. Odom

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 19 April 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-25 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-4, 12-16, 20-22 and 25 is/are rejected.
- 7) ☒ Claim(s) 5-11, 17-19, 23 and 24 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 19 April 2001 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

**DETAILED ACTION***Drawings*

1. The drawings are objected to because all elements of each drawing figure are suggested to be labeled (see Figs. 1 and 10). Corrected drawing sheets are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

2. The drawings are objected to because in Fig. 2, blocks FMI and IMI are suggested to be changed to blocks "FM1" and "IM1". Corrected drawing sheets are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if

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only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

3. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they do not include the following reference character(s) mentioned in the description: Fig. 2, reference character 12 (see page 7, line 2). Corrected drawing sheets are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

4. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they include the following reference character(s) not mentioned in the description: Fig 7, Lines 71-74

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(see page 10, lines 22-33) and Fig. 10, Pre-distorter 100 (see page 11, line 26). Corrected drawing sheets, or amendment to the specification to add the reference character(s) in the description, are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

### *Specification*

5. Applicant is reminded of the proper language and format for an abstract of the disclosure.

The abstract should be in narrative form and generally limited to a single paragraph on a separate sheet within the range of 50 to 150 words. It is important that the abstract not exceed 150 words in length since the space provided for the abstract on the computer tape used by the printer is limited. The form and legal phraseology often used in patent claims, such as "means" and "said," should be avoided. The abstract should describe the disclosure sufficiently to assist readers in deciding whether there is a need for consulting the full patent text for details.

The language should be clear and concise and should not repeat information given in the title. It should avoid using phrases which can be implied, such as, "The disclosure concerns," "The disclosure defined by this invention," "The disclosure describes," etc.

6. The abstract of the disclosure is objected to because it contains more than 150 words (see above). Correction is required. See MPEP § 608.01(b).

The following guidelines illustrate the preferred layout for the specification of a utility application. These guidelines are suggested for the applicant's use.

### **Arrangement of the Specification**

7. As provided in 37 CFR 1.77(b), the specification of a utility application should include the following sections in order. Each of the lettered items should appear in upper case, without underlining or bold type, as a section heading. If no text follows the section heading, the phrase "Not Applicable" should follow the section heading:

- (a) TITLE OF THE INVENTION.
- (b) CROSS-REFERENCE TO RELATED APPLICATIONS.
- (c) STATEMENT REGARDING FEDERALLY SPONSORED RESEARCH OR DEVELOPMENT.
- (d) INCORPORATION-BY-REFERENCE OF MATERIAL SUBMITTED ON A COMPACT DISC (See 37 CFR 1.52(e)(5) and MPEP 608.05. Computer program listings (37 CFR 1.96(c)), "Sequence Listings" (37 CFR 1.821(c)), and tables having more than 50 pages of text are permitted to be submitted on compact discs.) or  
REFERENCE TO A "MICROFICHE APPENDIX" (See MPEP § 608.05(a). "Microfiche Appendices" were accepted by the Office until March 1, 2001.)
- (e) BACKGROUND OF THE INVENTION.
  - (1) Field of the Invention.
  - (2) Description of Related Art including information disclosed under 37 CFR 1.97 and 1.98.
- (f) BRIEF SUMMARY OF THE INVENTION.
- (g) BRIEF DESCRIPTION OF THE SEVERAL VIEWS OF THE DRAWING(S).
- (h) DETAILED DESCRIPTION OF THE INVENTION.
- (i) CLAIM OR CLAIMS (commencing on a separate sheet).
- (j) ABSTRACT OF THE DISCLOSURE (commencing on a separate sheet).
- (k) SEQUENCE LISTING (See MPEP § 2424 and 37 CFR 1.821-1.825. A "Sequence Listing" is required on paper if the application discloses a nucleotide or amino acid sequence as defined in 37 CFR 1.821(a) and if the required "Sequence Listing" is not submitted as an electronic document on compact disc).

8. The disclosure is objected to because of the following informalities:

- a. There are not section headings (see above arrangement of the specification).
- b. On page 1, line 15, the word "recognised" is suggested to be changed to "recognized".
- c. On page 1, line 16, the word "utilise" is suggested to be changed to "utilize".

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- d. On page 3, line 1, the word "pre-distortion" is suggested to be changed to "pre-distorting".
- e. On page 3, line 9, the word "apparatus" is suggested to be changed to "An apparatus".
- f. On page 4, line 6, the phrase "memory-less or not" is suggested to be changed to "memory-less or not".
- g. On page 7, line 10, the phrase "to summing node" is suggested to be changed to "at summing node".
- h. On page 9, line 29, the phrase "constellation 5" is suggested to be changed to "constellation".
- i. On page 10, line 20, the word "with" is suggested to be changed to "wherein".
- j. On page 12, line 27, the word "corrector" is suggested to be changed to "microprocessor".

Appropriate correction is required.

### *Claim Objections*

- 9. Claims 2 and 3 are objected to because of the following informalities:
  - a. In claim 2, the phrase "the said bandwidth" is suggested to be changed to "said bandwidth".
  - b. In claim 3, the phrase "of each" is suggested to be deleted.

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c. In claim 3, the phrase "passing of the signal" is suggested to be changed to "passing the signal".

Appropriate correction is required.

10. Claims 5-11 and 17-19 are objected to under 37 CFR 1.75(c) as being in improper form because a multiple dependent claim cannot depend from any other multiple dependent claim. See MPEP § 608.01(n). Accordingly, the claims have not been further treated on the merits.

11. Claims 23 and 24 are objected to under 37 CFR 1.75(c) as being in improper form because a multiple dependent claim should refer to other claims in the alternative only. See MPEP § 608.01(n). Accordingly, the claims have not been further treated on the merits.

#### ***Claim Rejections - 35 USC § 112***

12. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

13. Claim 20 recites the limitation "the satellite" in line 11. There is insufficient antecedent basis for this limitation in the claim.

#### ***Claim Rejections - 35 USC § 102***

14. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –



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(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

15. Claims 1-4 and 12-15 are rejected under 35 U.S.C. 102(e) as being anticipated by Blauvelt (U. S. Patent No. 6, 288, 814).

Regarding claim 1, Blauvelt discloses a method of pre-distorting a signal (Fig. 8, column 8, lines 15-67) modulated to carry symbols representative of digital data, so as to offset later distortion of the signal during transmission across a transmission link, the method comprising passing the signal through a cascade of pre-distorting stages (Fig. 8, Distortion Blocks A, B, C, and D), each of which generates an approximation of the required pre-distortion, each successive stage receiving the approximation from the preceding stage so that errors in successive approximations converge (column 8, lines 15-24).

Regarding claim 2, which inherits the limitations of claim 1, Blauvelt discloses the signal is passed through a cascade of pre-distorting stages, each of which generates an approximation within the bandwidth of the transmission link (column 8, lines 15-24), wherein the selected frequency ranges represents the bandwidth of transmission link.

Regarding claim 3, which inherits the limitations of claims 1 or 2, Blauvelt discloses the passing of the signal through an initial approximator prior to its passage through successive approximation stages (Fig. 8, Distorter D, column 8, lines 25-46).

Regarding claim 4, which inherits the limitations of claim 3, Blauvelt discloses the initial approximator comprises a static pre-distortion approximation function (column 8, lines 25-46), wherein the coarse (amplitude) pre-distortion is a static function.

Regarding claim 12, Blauvelt discloses a an apparatus for pre-distortion of a signal (Fig. 8, column 8, lines 15-67) modulated to carry symbols representative of digital data, so as to offset later distortion of the signal during transmission across a transmission link, the apparatus comprising a cascade of pre-distorting stages (Fig. 8, Distortion Blocks A, B, C, and D), each of which generates an approximation of the required pre-distortion, each successive stage receiving the approximation from the preceding stage so that errors in successive approximations converge (column 8, lines 15-24).

Regarding claim 13, which inherits the limitations of claim 12, Blauvelt discloses the signal is passed through a cascade of pre-distorting stages, each of which generates an approximation within the bandwidth of the transmission link (column 8, lines 15-24), wherein the selected frequency ranges represents the bandwidth of transmission link.

Regarding claim 14, which inherits the limitations of claims 1 or 2, Blauvelt discloses the apparatus comprising of an initial approximator prior to its passage through successive approximation stages (Fig. 8, Distorter D, column 8, lines 25-46).

Regarding claim 15, which inherits the limitations of claim 4, Blauvelt discloses the initial approximator comprises a static pre-distortion approximation function (column 8, lines 25-46), wherein the coarse (amplitude) pre-distortion is a static function.

### ***Claim Rejections - 35 USC § 103***

16. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

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(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

17. Claims 16, 21, 22, and 25 rejected under 35 U.S.C. 103(a) as being unpatentable over Blauvelt (U. S. Patent No. 6, 288, 814) in view of Karam et al. (U. S. Patent No. 5, 113, 414).

Regarding claim 16, Blauvelt discloses all the limitations of claim 16, (see rejection of claim 15), except the apparatus is adapted for transmission of the signal across a satellite transmission link.

Karam et al. discloses pre-distortion can be applied to transmission of a signal across a satellite transmission link (Fig. 6, column 1, lines 29-60). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to include the pre-distortion apparatus of Blauvelt in a satellite transmission link as disclosed by Karam et al. in order to reduce the distortion inherited by the signal from the transmission link using pre-distortion stages which would more accurately pre-distort the signal.

Regarding claim 21, which inherits the limitations of claim 16, Karam et al. further discloses the satellite transmission link includes a Nyquist filter (column 3, lines 28-34).

Regarding claim 22, which inherits the limitations of claim 21, Karam et al. does not disclose Nyquist filter comprises root Nyquist filters. However, it would be obvious to one of ordinary skill in the art at the time the invention was made that it is well known in the art that a Nyquist filter comprises of root Nyquist filter. Thus claim 22, does not constitute patentability.

Regarding claim 25, Karam et al. further discloses the apparatus comprises a feedback control loop (Fig. 6, column 5, lines 41-55). It would have been obvious to one of ordinary skill in the art at the time the invention was made to include this feature to update the pre-distortion

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circuit. Implementing the update procedure greatly increases the adaptability of the pre-distortion circuit.

***Conclusion***

18. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Curtis B. Odom whose telephone number is 703-305-4097. The examiner can normally be reached on Monday- Friday, 8-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stephen Chin can be reached on 703-305-4714. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Curtis Odom  
August 6, 2004

  
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